

REMARKS

This Amendment is fully responsive to the final Office Action dated June 23, 2010, issued in connection with the above-identified application. A request for continued examination (RCE) is included. Claims 15-22 and 24-28 are pending in the present application. With this Amendment, claims 15, 18-21 and 26-28 have been amended; and claim 29 has been added. No new matter has been introduced by the amendments made to the claims or by the new claim added. Favorable reconsideration is respectfully requested.

In the Office Action, claims 15-17 and 24-28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Shikakura et al. (U.S. Patent No. 6,108,379, hereafter “Shikakura”) in view of Nishida (U.S. Patent No. 6,519,007, hereafter “Nishida”).

The Applicants have amended independent claims 15 and 26-28 to more clearly distinguish the present invention from the cited prior art. For example, independent claim 15 (as amended) recites *inter alia* the following features:

“[a] broadcast receiving apparatus comprising:...

a detector which detects a decoding error part of the first TV broadcast signal decoded by said first decoder; and

a synthesizer which generates a composite signal obtained by replacing the decoding error part, which is an abnormal received data region, of the first TV broadcast signal detected by the detector with a corresponding part of the second TV broadcast signal decoded by said second decoder and by using normal received data regions of the first TV broadcast signal as decoded by said first decoder without the decoding error part of the first TV broadcast signal,

wherein the first TV broadcast signal and the second TV broadcast signal are each a digital TV broadcast signal, and the first TV broadcast signal has a content identical to a content of the second TV broadcast signal and provides video data of a quality higher than a quality of the second TV broadcast signal.” (Emphasis added).

The features emphasized above in independent claim 15 are similarly recited in independent claims 26-28 (as amended). Additionally, the features emphasized above in independent claim 15 (and similarly recited in independent claims 26-28) are fully supported by the Applicants’ disclosure (see e.g., pg. 12, line 21-pg. 13, line 28; and Figs. 1 and 2).

The present invention (as recited in independent claims 15 and 26-28) is distinguishable from the cited prior art in that an error decoding part of a first TV broadcast signal is detected,

which is an abnormal data region within the first TV broadcast signal. Additionally, when generating a composite signal, the decoding error part detected within the first TV broadcast signal is replaced with a corresponding part of the second TV broadcast signal. The first TV broadcast signal has content identical to the content of the second TV broadcast signal.

A high quality image is possible because most of the first TV broadcast signal is used as is or as decoded (i.e., minus the decoding error part) when generating the composite signal, which is of a quality higher than the second TV broadcast signal. More specifically, when generating a composite signal an entire block region of the first TV broadcast signal is not subjected to replacement, only the decoding error part is replaced. Therefore, it is possible to obtain image data of a higher quality by avoiding unnecessary replacement of the first TV broadcast signal.

In the Office Action, the Examiner relies on the combination of Shikakura and Nishida for disclosing or suggesting all the features recited in independent claims 15 and 26-28.

However, the Applicants assert that there is no motivation in the teachings of the references to make the suggested combination. Additionally, even if the references are combined, the combination fails to disclose or suggest all the features recited in independent claims 15 and 26-29 (as amended).

In the Office Action, the Examiner relies on Shikakura for disclosing the claimed first and second TV broadcast signals; features of the claimed detector; and features of the claimed synthesizer, recited in independent claim 15 (and similarly recited in independent claims 26-28).

Independent claims 15 and 26-28 similarly recite:

“the first TV broadcast signal has a content identical to a content of the second TV broadcast signal”

In Shikakura, the Examiner alleges that residual bit stream is equivalent to the claimed “first TV broadcast signal,” and the low-quality bit stream is equivalent to the claimed “second TV broadcast signal.”

However, col. 3, lines 22 states that the low-quality bit stream is the result of an image signal received by an input terminal and digitized by an A/D converter, and then encoded at a high compression rate. As described in col. 3, lines 41-45, the residual bit stream is the result of a subtraction between the original data image signal from the A/D converter and the low-quality

bit stream. Thus, the residual bit stream (i.e., first TV broadcast signal) disclosed in Shikakura cannot include identical content to the low-quality bit stream (i.e., second TV broadcast signal).

On the other hand, independent claims 15 and 26-28 recite that “*the first TV broadcast signal has a content identical to a content of the second TV broadcast signal.*”

Independent claims 15 and 26-28 also recite:

detecting “*a decoding error part of the first TV broadcast signal decoded by said first decoder.*”

In the Office Action, the Examiner relies on col. 4, lines 51-55 and col. 5, lines 48-67 of Shikakura for disclosing or suggesting the claimed feature of detecting “a decoded error part.”

However, the most relevant portions of Shikakura in col. 4, lines 51-55 and col. 5, lines 48-67 disclose that a bit error detection unit detects errors in the residual bit stream, whereby if the residual bit stream contains errors it is not added to the low-quality bit stream. In other words, there is no synthesis of the residual bit stream and the low-quality bit stream. Thus, the low-quality bit stream alone is outputted.

Thus, Shikakura in col. 4, lines 51-55 and col. 5, lines 48-67 appears to directly teach away from the present invention (as recited in independent claims 15 and 26-28). In the present invention, a substantial portion of the first TV broadcast signal is used as is (i.e., minus the decoding error part) when generating the composite signal because the first TV broadcast signal is of a higher quality than the second TV broadcast signal. Conversely, in Shikakura, in some cases the residual bit stream (i.e., first TV broadcast signal) is not even used. Thus, the reason for detecting the error portion in Shikakura appears to be completely different from the reason for detecting the error portion in the present invention (as recited in independent claims 15 and 26-28).

For example, independent claims 15 and 26-28 recite:

generating “*a composite signal obtained by replacing the decoding error part, which is an abnormal received data region, of the first TV broadcast signal detected by the detector with a corresponding part of the second TV broadcast signal decoded by said second decoder and by using normal received data regions of the first TV broadcast signal as decoded by said first decoder without the decoding error part of the first TV broadcast signal.*”

In the Office Action, the Examiner also relies on Shikakura in col. 8, lines 44-51 and col. 9, lines 8-13 for disclosing the claimed feature of the generating “a composite signal.”

However, Shikakura in col. 8, lines 44-51 merely discloses that the low-quality bit stream and the residual bit stream are synthesized to produce an original image signal. And, Shikakura in col. 9, lines 8-13 discloses that when an error is detected, the band synthesis unit will not synthesize the residual image signal with the low-quality bit stream.

As noted above, the Examiner alleges that the residual bit stream disclosed in Shikakura is equivalent to the claimed “first TV broad cast signal,” but the residual bit stream does not include identical content to the low-quality bit stream. In fact, the residual bit stream is the result of a subtraction between the original data image signal from the A/D converter and the low-quality bit stream (see col. 3, lines 41-45).

Thus, the synthesis unit disclosed in Shikakura cannot generate a composite signal by *“replacing the decoding error part, which is an abnormal received data region, of the first TV broadcast signal detected by the detector with a corresponding part of the second TV broadcast signal decoded by said second decoder and by using normal received data regions of the first TV broadcast signal as decoded by said first decoder without the decoding error part of the first TV broadcast signal,”* as recited in independent claims 15 and 26-28.

At best, Shikakura merely discloses that that the low-quality bit stream (i.e., second TV broadcast signal) and the residual bit stream (i.e., first TV broad cast signal) are synthesized to produce an original image signal. And, in some cases the residual bit stream is not even used (see col. 9, lines 8-13).

On the contrary, in the present invention (as recited in independent claims 15 and 26-28) as much of the first TV broadcast signal as possible is used in order to achieve a higher quality image because the first TV broadcast signal is of a quality higher than the second TV broadcast signal. Thus, when generating a composite signal, an entire block region of the first TV broadcast signal is not subjected to replacement. Instead, only the decoding error part is replaced. Therefore, image data of higher quality is obtained by avoiding unnecessary replacement of the first TV broadcast signal.

The features and advantages of the present invention (as recited in independent claim 15 and 26-28) noted above are not disclosed or suggested by Shikakuda. Also, as noted above, some portions of Shikakuda actually teach away (see e.g., col. 4, lines 51-55 and col. 5, lines 48-67) from the present invention, as recited in independent claims 15 and 26-28. Therefore, one of ordinary skill in the art would not be motivated to combine the teachings of Shikakuda and

Nishida in an attempt to arrive at the present invention (as recited in independent claims 15 and 26-28).

Regardless, the Applicants assert that even if Shikakuda and Nishida were combined, Nishida fails to overcome all the deficiencies noted above in Shikakura.

In the Office Action, the Examiner relies on col. 4, line 66-col. 5, line 11 of Nishida for disclosing or suggesting features of the present invention (as recited in independent claims 15 and 26-28), which the Examiner acknowledges is lacking in Shikakura. (See Office Action, pg. 5)

Nishida discloses that first video data is divided into different units and it is determined if the divided units are insufficient due to the loss of data. If it is determined that units of the first video data are insufficient due to the loss of data, then the units of the first video data are replaced with units of the second video data. For example, Nishida in col. 4, line 66-col. 5, line 11 discloses that when it is determined that all the first video data exists without any data loss, the first video data is stored according to the address data and the time code allocated to each of the first video data. On the other hand, when it is determined that a portion of the first video data is missing, second video data is stored according to the address data as well as to the time code allocated to the second video data.

Conversely, independent claims 15 and 26-28 recite:

generating “a composite signal obtained by replacing the decoding error part, which is an abnormal received data region, of the first TV broadcast signal detected by the detector with a corresponding part of the second TV broadcast signal decoded by said second decoder and by using normal received data regions of the first TV broadcast signal as decoded by said first decoder without the decoding error part of the first TV broadcast signal.”

In the present invention (as recited in independent claims 15 and 26-28), broadcast receiving includes directly detecting a decoding error portion which is an abnormal received data region, if any, irrespectively of whether there is a loss of data in the first TV broadcast signal. Additionally, a synthesizing operation replaces only the decoding error part in the first TV broadcast signal with the corresponding part of the second TV broadcast signal. That is, when generating the composite signal, the normal received data regions of the first TV broadcast signal as decoded by the first decoder are used without the decoding error part. Thus, an entire block region of the first TV broadcast signal is not subjected to replacement (as in Nishida), only the

decoding error part is replaced. With the present invention (as recited in independent claims 15 and 26-28), it is possible to obtain image data of higher quality while avoiding unnecessary replacement of the first TV broadcast signal with the second TV broadcast signal.

Thus, Nishida in col. 4, line 66-col. 5, line 11 fails to disclose or suggest replacement of *“a decoding error part, which is an abnormal received data region, of the first TV broadcast signal detected by the detector with a corresponding part of the second TV broadcast signal decoded by said second decoder,”* as recited in independent claims 15 and 26-28. Instead, Nishida only discloses replacing an entire unit of missing first video data with a unit of second video data.

Based on the above discussion, the Applicants assert that there is no motivation in the teachings of the references to make the suggested combination. Additionally, even if the references are combined, the combination fails to disclose or suggest all the features recited in independent claims 15 and 26-28 (as amended). Likewise, no combination of the cited references would result in, or otherwise render obvious, claims 16, 17, 24 and 25 at least by virtue of their dependencies from independent claim 15.

In the Office Action, claim 18 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Shikakura in view of Nishida, and further in view of Hatabu et al. (U.S. Publication No. 2005/0117643, hereafter “Hatabu”); and claims 19-22 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Shikakura in view of Nishida, and further in view of Karaoguz et al. (U.S. Publication No. 2005/0066089, hereafter “Karaoguz”).

Claims 18-22 depend (directly or indirectly) from independent claim 15. As noted above, Shikakura and Nishida fail to disclose or suggest all the features recited in independent claim 15. Additionally, Hatabu and Karaoguz fail to overcome the deficiencies noted above in Shikakura and Nishida. Accordingly, no combination of Shikakura and Nishida with Hatabu or Karaoguz would result in, or otherwise render obvious, claims 18-22 at least by virtue of their dependencies from independent claim 15.

Finally, the Applicants assert that new claim 29 is distinguishable from the cited prior art at least by virtue of its dependency from independent claim 15. Additionally, the Applicants assert that claim 29 is also believed to be distinguishable from the cited prior art on its own merit.

Claim 29 recites that *“when a resolution of the first TV broadcast signal decoded by said first decoder is different from a resolution of the second TV broadcast signal decoded by said second decoder, said synthesizer implements data expansion or contraction depending on a resolution ratio of the resolution of the first TV broadcast signal and the resolution of the second TV broadcast signal.”*

The features noted above in claim 29 are fully supported by the Applicants’ disclosure (see e.g., pg. 12, lines 10-15). Additionally, no such features are believed to be disclosed or suggested by the cited prior art. Accordingly, claim 29 is also believed to be distinguishable for the cited prior art on its own merit.

In light of the above, the Applicants submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass the present application to issue.

Respectfully submitted,

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September 23, 2010